WEST Search History

DATE: Monday, June 16, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=JPAB; PLUR=YES; OP=OR			
L12	60180058	1	L12
DB=USPT; PLUR=YES; OP=OR			
L11	60180058	0	L11
L10	((battery adj (case or can or container)) and (bottom or (side adj wall)) and (thick or thickness) and ratio).clm.	4	L10
DB=DWPI; PLUR=YES; OP=OR			
L9	L8 and ratio	5	L9
L8	(battery adj (case or can or container)) and (bottom or (side adj wall)) and (thick or thickness)	49	L8
DB=USPT; PLUR=YES; OP=OR			
L7	(battery adj (case or can or container)) and (bottom or (side adj wall)) and (thick or thickness)	2507	L7
L6	L5 and (base or bottom).clm.	9	L6
L5	L4 and (battery adj (case or can or container)).clm.	21	L5
L4	L1 and (side adj wall)	143	L4
DB=DWPI; PLUR=YES; OP=OR			
L3	((battery adj (case or can or container)) and bottom and (thick or thickness) and ratio)	5	L3
DB=USPT; PLUR=YES; OP=OR			
L2	((battery adj (case or can or container)) and bottom and (thick or thickness) and ratio).clm.	4	L2
L1	(battery adj (case or can or container)) and bottom and (thick or thickness) and ratio	843	L1

END OF SEARCH HISTORY

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Set Name side by side	Query	Hit Count	Set Name result set
DB=JPAB; PLUR=YES; OP=OR			
L8	(divided adj electrode) and (battery or electrochemical) and electrolyte	0	L8
DB=EPAB; PLUR=YES; OP=OR			
L7	(divided adj electrode) and (battery or electrochemical) and electrolyte	0	L7
L6	L4 and (battery or electrochemical) and electrolyte	0	L6
DB=DWPI; PLUR=YES; OP=OR			
L5	L4 and (battery or electrochemical) and electrolyte	5	L5
L4	(divided adj electrode)	388	L4
DB=USPT; PLUR=YES; OP=OR			
L3	L2 and (divided adj electrode).clm.	8	L3
L2	L1 and (battery or electrochemical) and electrolyte	45	L2
L1	(divided adj electrode)	659	L1

END OF SEARCH HISTORY

WEST Search History

DATE: Sunday, June 15, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=OR			
L17	L14 and (segmented or expanded or expansion).clm.	31	L17
L16	L14 and (segmented or expanded or expansion)	279	L16
L15	(nickel and (metal adj hydride) and (wound or rolled or cylindrical or (jelly adj roll))).clm.	34	L15
L14	(nickel and (metal adj hydride) and (wound or rolled or cylindrical or (jelly adj roll)))	988	L14
L13	(plural adj electrode adj plate)	11	L13
L12	4963445	11	L12
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L9	62177869	1	L9
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L8	62177869	3	L8
L7	177869	4	L7
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L6	L5 and (wound or rolled or cylindrical or (jelly adj roll))	91	L6
L5	L1 and (electrode and plates).clm.	143	L5
DB=JPAB; PLUR=YES; OP=OR			
L4	electrode and plates and (segments or separated or separation) and (active adj material) and (expanded or expansion)	14	L4
DB=EPAB; PLUR=YES; OP=OR			
L3	electrode and plates and (segments or separated or separation) and (active adj material) and (expanded or expansion)	0	L3
DB=DWPI; PLUR=YES; OP=OR			
L2	electrode and plates and (segments or separated or separation) and (active adj material) and (expanded or expansion)	3	L2
DB=USPT; PLUR=YES; OP=OR			
L1	electrode and plates and (segments or separated or separation) and (active adj material) and (expanded or expansion)	856	L1

END OF SEARCH HISTORY

Claims:

1. Spirally-rolled electrodes for batteries having a concentric circle shape or an elliptic shape with positive electrodes, negative electrodes and a separator therebetween, wherein;

(1) the said positive electrode and/or negative electrode comprise the combinations of plural electrode plates;

(2) each of the said combinations in the said positive electrode and/or the said negative electrode is constituted so that the total amount of the active material or pseudo-active material which are the main materials is substantially constant and;

(3) each electrode plate in the electrode comprising plural electrode plates is wound in series with an interval therebetween.

2. Spirally-rolled electrodes for batteries as set forth in claim 1, wherein each of the plural electrode plates comprising the said positive electrode and/or negative electrode has a lead terminal or a terminal equivalent to a lead terminal respectively.

3. Spirally-rolled electrodes for batteries as set forth in claim 1, wherein each of the plural electrode plates comprising at least in the said positive electrode has a metal

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foil without active materials along the edge of one side in the winding direction and the said metal foil exposed over a separator.

4. Spirally-rolled electrodes for batteries wherein the electrodes for batteries having a concentric circle shape or an elliptic shape with a thin nickel positive electrode and a thin metal hydride negative electrode which are wound spirally interposing a separator therebetween has the characteristics as below:

(1) the said thin nickel positive electrode is the electrode around which plural positive electrode plates are wound in series in order;

(2) the said thin metal hydride negative electrode is the electrode around which one or plural negative electrodes are wound in series in order;

(3) plural electrode plates in each electrode are so combined that the total amount of the active material or pseudo-active material is substantially constant;

(4) plural electrode plates in each electrode are wound in series with an interval therebetween and;

(5) the thickness of an electrode at the side where the winding starts is thinner than the thickness of an electrode at the side where the winding ends in several electrode plates in an electrode comprising several electrode plates.

5. Spirally-rolled electrodes for batteries as set forth in claim 4, wherein each of the several electrode plates comprising the said positive electrode and the said negative electrode has at least two chamfered corners.

6. Spirally-rolled electrodes for batteries as set forth in claim 4, wherein the interval among the plural electrode plates comprising the said positive electrode and/or negative electrode is within the range of 1.0-5.0 mm.

7. Spirally-rolled electrodes for batteries as set forth in claim 4, wherein each of the several electrodes themselves has substantially the same area.

8. A secondary battery wherein the spirally-rolled electrodes for batteries are sealed having a concentric circle shape or an elliptic shape with a positive electrode and a negative electrode which are wound spirally interposing a separator therebetween has the structure as below:

(1) the said positive electrode and/or negative electrode comprise with the combinations of plural electrode plates;

(2) each of the said combinations in the said positive electrode and/or the said negative electrode so comprises that the total amount of the active material or pseudo- active material which

are the main materials is substantially constant and;

(3) each electrode plate in the electrode is wound in series with an interval therebetween.

9. A secondary battery as set forth in claim 8, wherein the thickness at the bottom of the said battery case (t_2) is thick enough for welding and the ratio (t_2/t_1) of the thickness at the bottom (t_2) to the thickness at the side wall (t_1) is not less than 1.5.

10. A secondary battery as set forth in claim 9, wherein thicker part is provided inside the battery case at the border of the side wall and the bottom of the said battery case.

11. A secondary battery as set forth in claim 9, wherein the adjacent positive terminal of the secondary battery is welded directly or indirectly by a metallic connector to the bottom of the neighboring battery case.

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Search Results -

Terms	Documents
60180058	1

Database:
- US Patents Full-Text Database
- US Pre-Grant Publication Full-Text Database
- JPO Abstracts Database
- EPO Abstracts Database
- Derwent World Patents Index
- IBM Technical Disclosure Bulletins

Search: L12

Refine Search

Recall Text | Clear

Search History

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END OF SEARCH HISTORY